

IX. Amended Claims Appendix

1.-130. (Cancelled)

131. (New) A novel combination of additives useful for mixing with phosphate ester based aircraft hydraulic fluids comprising:

(a) an acid scavenger comprising an epoxide compound;

(b) an anti-erosion additive comprising an alkali metal salt of a perfluoroalkyl sulfonic acid;

(c) a viscosity index improver comprising a methacrylate ester polymer at least 95% by weight of the polymer having a molecular weight of between about 50,000 and 1,500,000; and

(d) an antioxidant wherein said antioxidant is selected from the group consisting of a hindered phenol and said hindered phenol in combination with an amine compound.

132. (New) An additive composition as set forth in claim 131 comprising a 2,4,6-trialkylphenol, a di(alkylphenyl)amine and a hindered polyphenol selected from the group consisting of bis(3,5-dialkyl-4-hydroxyaryl)methane and 1,3,5-trialkyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxyaryl)benzene and mixtures thereof.

133. (Previously Presented) An additive composition as set forth in claim 131 comprising:

(a) a viscosity index improver comprising a methacrylate ester polymer, the repeating

units of which substantially comprise butyl and hexyl methacrylate, at least 95% by weight of the polymer having a molecular weight of between about 50,000 and about 1,500,000;

(b) an anti-erosion agent comprising an alkali metal salt of a perfluoroalkyl sulfonic acid, the alkyl substituent of which is selected from the group consisting of hexyl, heptyl, octyl, nonyl, decyl, and mixtures thereof;

(c) an acid scavenger comprising an epoxide compound;

(d) 2,4,6-trialkylphenol

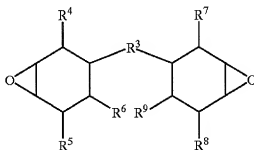
(e) a di(alkylphenyl)amine; and

(f) a hindered polyphenol selected from the group consisting of bis(3,5-dialkyl-4-hydroxyaryl)methane, 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl)-4-hydroxyaryl)benzene and mixtures.

134. (New) A novel combination of additives suitable for use in phosphate ester based aircraft hydraulic fluids comprising:

(a) a viscosity index improver a viscosity index improver comprising a methacrylate ester polymer, the repeating units of which substantially comprise butyl and hexyl methacrylate, at least 95% by weight of the polymer having a molecular weight of between about 50,000 and about 1,500,000;

- (b) an anti-erosion comprising an alkali metal salt of a perfluoroalkylsulfonic acid, the alkyl substituent of which is selected from the group consisting of hexyl, heptyl, octyl, nonyl, decyl, and mixtures thereof;
- (c) an acid scavenger and selected from the group consisting of a derivative of a 3,4-epoxy cyclohexane carboxylate and a diepoxide compound corresponding to the formula:



- wherein R³ is an organic group containing 1 to 10 carbon atoms, from 0 to 6 oxygen atoms and from 0 to 6 nitrogen atoms, and R⁴ through R⁹ are independently selected from among hydrogen and aliphatic groups containing 1 to 5 carbon atoms, and mixtures of the 3,4-epoxycyclohexane carboxylate and the diepoxide compound;
- (d) 2,4,6-trialkylphenol,
- (e) a di(alkylphenyl)amine; and
- (f) a hindered polyphenol selected from the group consisting of bis(3,5-dialkyl-4-hydroxyaryl)methane, 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxyaryl)benzene, and mixtures thereof.

135. (New) An additive composition as set forth in claim 134 further comprising benzotriazole or a benzotriazole derivative as a copper corrosion inhibitor.

136. (New) A composition as set forth in claim 134 further comprising an alkali metal arenate.

137. (New) A composition of claim 131 further comprising a 4,5-dihydroimidazole compound, the 4,5-dihydroimidazole compound corresponding to the formula



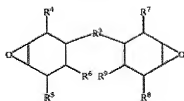
wherein R¹ is selected from the group consisting of hydrogen, alkyl, alkenyl, hydroxyalkyl, hydroxyalkenyl, alkoxyalkyl and alkoxyalkenyl, and R² is selected from the group consisting of alkyl, alkenyl and aliphatic carboxylate.

138. (New) An additive composition as set forth in claim 137 wherein R¹ is hydrogen or lower alkyl and R² is a fatty acid residue.

139. (New) An additive composition as set forth in claim 137 wherein R¹ is hydroxyalkyl and R² is alkenyl.

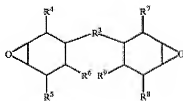
140. (New) An additive composition as set forth in claim 137 wherein the 4,5-dihydroimidazole is selected from the group consisting of 2-(8-heptadecenyl)-4,5-dihydro-1H-imidazole-1-ethanol and the condensation product of a C₁₄ to C₁₈ fatty acid and 4,5-dihydro-1H-imidazole.

141. (New) An additive composition as set forth in claim 140 wherein the 4,5-dihydroimidazole compound is the condensation product of a C₁₆ to C₁₈ fatty acid and 4,5-dihydro-1H-imidazole.
142. (New) An additive composition as set forth in claim 137 wherein the hindered phenol antioxidant comprises a mixture of a hindered phenol and a hindered polyphenol.
143. (New) Additive composition as set forth in claim 142 wherein the hindered polyphenol comprises a compound selected from the group consisting of bis(3,5-dialkyl-4-hydroxyaryl)methane, 1,3,5-trialkyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxyaryl)benzene, and mixtures thereof.
144. (New) An additive composition as set forth in claim 137 wherein the antioxidant amine compound is a diarylamine.
145. (New) A composition as set forth in claim 144 wherein said diarylamine comprises di(p-octylphenyl)amine.
146. (New) A composition as set forth in claim 144 further comprising 2,6-di-tertiary-butyl p-cresol.
147. (New) A composition as set forth in claim 131 wherein the hindered phenol antioxidant comprises a mixture of a hindered phenol and a hindered polyphenol.
148. (New) A composition as set forth in claim 147 wherein the amine antioxidant is a diarylamine.
149. (New) A composition as set forth in claim 131 wherein said epoxide acid scavenger is selected from the group consisting of a derivative of a 3,4-epoxy cyclohexane carboxylate and a diepoxide compound corresponding to the formula



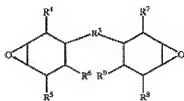
wherein R^3 is an organic group containing 1 to 10 carbon atoms, from 0 to 6 oxygen atoms and from 0 to 6 nitrogen atoms, and R^4 through R^9 are independently selected from among hydrogen and aliphatic groups containing 1 to 5 carbon atoms, and mixtures of the 3,4-epoxycyclohexane carboxylate and the diepoxide compound.

150. (New) A fluid composition as set forth in claim 133 wherein said epoxide acid scavenger is selected from the group consisting of a derivative of a 3,4-epoxy cyclohexane carboxylate and a diepoxide compound corresponding to the formula



wherein R^3 is an organic group containing 1 to 10 carbon atoms, from 0 to 6 oxygen atoms and from 0 to 6 nitrogen atoms, and R^4 through R^9 are independently selected from among hydrogen and aliphatic groups containing 1 to 5 carbon atoms, and mixtures of the 3,4-epoxycyclohexane carboxylate and the diepoxide compound.

151. (New) A composition as set forth in claim 137 wherein said epoxide acid scavenger is selected from the group consisting of a derivative of a 3,4-epoxy cyclohexane carboxylate and a diepoxide compound corresponding to the formula



wherein R³ is an organic group containing 1 to 10 carbon atoms, from 0 to 6 oxygen atoms and from 0 to 6 nitrogen atoms, and R⁴ through R⁹ are independently selected from among hydrogen and aliphatic groups containing 1 to 5 carbon atoms, and mixtures of the 3,4-epoxycyclohexane carboxylate and the diepoxide compound.

152. (New) A composition as set forth in claims 131 or 137, wherein in the anti-erosion additive comprising an alkali metal salt of a perfluoroalkyl sulfonic acid the alkyl substituent comprises from 5 to 12 carbon atoms.